

FLOATING BOG

Concept: Floating Bogs are rare communities developed on floating vegetation mats in deep water. They may occur in limesink depressions, or in natural or artificial impoundments. Vegetation usually includes a mixture of species shared with northern quaking bogs and pocosins. Characteristic species are *Rhynchospora alba*, *Dulichium arundinaceum*, *Hypericum virginicum*, *Eleocharis baldwinii*, *Sarracenia rubra*, *Sarracenia flava*, *Chamaedaphne calyculata*, and *Sphagnum cuspidatum*.

Distinguishing Features: Floating Bogs are distinguished from almost all other communities by their substrate, which consists of organic mats floating on water. The few examples known are in very different settings, including a limesink pond, a naturally blocked creek embayment, and an old mill pond impounded in a pocosin. The only similar community, Riverine Floating Mat, occurs in flowing or tidal waters and consists of species such as *Hydrocotyle ranunculoides* or *Sacciolepis striata* rather than species associated with bog environments.

Synonyms: *Rhynchospora alba* Saturated Herbaceous Vegetation (CEGL004463).
Ecological Systems: Southern Atlantic Coastal Plain Depression Pondshore (CES203.262).

Sites: Floating Mat communities are known from only a handful of sites. They may potentially occur in any standing water, including limesink depressions, long-standing natural or artificial impoundments, or stagnant creeks. The conditions that lead to their formation in the handful of sites and not in others are unknown.

Soils: The soil consists of a mat of floating organic matter formed by vegetation and bound together by live roots.

Hydrology: Floating mats occur in permanent or near-permanent water.

Vegetation: The vegetation is quite different in each of the handful of examples. It has in common a mix of species tolerant of extremely acidic wetland conditions, forming a dense floating herb mat and having small individuals of woody species. *Sphagnum cuspidatum* or some other species of *Sphagnum* seems to form the matrix or substrate of the mat in most or all examples. *Rhynchospora alba* often is present. In one example, *Dulichium arundinaceum* and *Decodon verticillatus* are abundant. In a second one nearby, *Rhynchospora inundata*, *Calopogon tuberosus*, and *Xyris smalliana* are the primary additional species. One has a mix of *Xyris* sp., *Drosera intermedia*, *Andropogon glaucopsis*, *Sarracenia flava*, *Hymenachne hemitomom*, and *Chamaedaphne calyculata*. Another has *Eleocharis microcarpa*, *Hydrocotyle verticillata*, *Anchistea virginica*, *Persicaria* sp., and at least some *Vaccinium macrocarpon*. Woody species in examples include *Pinus serotina*, *Morella cerifera*, *Smilax laurifolia*, and *Smilax walteri*.

Range and Abundance: Ranked G1?. This community is known from three examples in North Carolina. The NVC association has not been attributed to any other state but it should be sought in similar settings in nearby states.

Associations and Patterns: The known examples vary in their associations in accordance with their setting. One occurs in limesink depressions, where it is associated with Small Depression Pond and Small Depression Shrub Border communities. One is in an artificially impounded peat-filled Carolina bay, where it is surrounded by Coastal Plain Semipermanent Impoundment (Open Water Subtype) and by Low Pocosin. The third is along a small drowned river, where it is bordered by pocosin communities.

Variation: All known examples are extremely different from each other and could be regarded as distinct variants if not subtypes.

Dynamics: Virtually nothing is known about the dynamics of these communities. The factors that led to their formation are not known, beyond general conditions that are similar to numerous sites that do not have Floating Bogs. At least one example has developed in the last 200 years, in an impounded pocosin. The age of the others is not known. They may be relatively transient communities, though none have been observed to appear or disappear. The mechanism of mat development seems to include both accretion onto floating vegetation such as *Nymphaea* or *Sphagnum* and extension by vegetative spread at the edge of the mat.

Floating Mats may be long-term primary successional communities, with the mats gradually extending and thickening until their peat fills the basin. They resemble at least superficially the primary successional communities of northern glacial kettle hole bogs that are believed to undergo this process. If so, once grounded and stable, they likely will develop some kind of pocosin vegetation. Alternatively, they may represent a kind of dynamic equilibrium or cyclic succession, their spread and development checked by conditions or periodically destroyed by natural disturbances

Comments: Floating Bog communities are among the more enigmatic communities of North Carolina. The examples are tied together by a distinctive phenomenon of mat development that is extremely rare and poorly understood.

This community type does not fit cleanly into any theme but fits Coastal Plain Depression Communities better than any other.

Rare species: Vascular Plants: *Rhynchospora alba* and *Vaccinium macrocarpon*.

References: